

Recovery Plan Action Status

Plan Name: Winged Mapleleaf Mussel

Plan Status: Final

Plan Date: 25-Jun-97

Lead Agency: USFWS

Lead Office: Twin Cities Ecological Services Field Office

(612)

725-3548)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Winged Mapleleaf (Quadrula fragosa)	1	1A1	Community population monitoring	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Research: Population Surveys	Internal Field Assistance	
Winged Mapleleaf (Quadrula fragosa)	1	1B1	Install flow gauge	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Northern States Power Co.	Management: General	Contract	Installed, 1993
Winged Mapleleaf (Quadrula fragosa)	1	1B2	Instream flow study	Complete	Prior to FY 1995	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources	Research: General	Internal Technical Assistance	Completed, 1995
Winged Mapleleaf (Quadrula fragosa)	2	1B3	Analyze hourly flow records	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	

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Winged Mapleleaf (Quadrula fragosa)	1	1B4	NSP flow regime	Complete	FY 2000 - FY 2004	FY 2006	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Wisconsin Department of Natural Resources, Northern States Power Co.	Management: Other	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	1C1	Federal/State/Local Emergency response plans	Complete	FY 2007	FY 2007	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	1C2	Hazardous material transport	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	1C3	Document harmful material storage	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1C4	Spill reduction and response plan	Complete	FY 2007	FY 2007	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	1C5	NSP spill assistance	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1C6	Hazardous waste facilities	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	

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Winged Mapleleaf (Quadrula fragosa)	1	1D1	Monitor for zebra mussels	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Research: Population Surveys	Internal Field Assistance	See 1D3 cost est.
Winged Mapleleaf (Quadrula fragosa)	1	1D2	Monitor zebra mussel loads	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	See 1D3 cost est.
Winged Mapleleaf (Quadrula fragosa)	1	1D3	Assess zebra mussel impact	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	1	1D4	Emergency zebra mussel response plan	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	In progress, 1993
Winged Mapleleaf (Quadrula fragosa)	1	1D5	Protective legislation	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1E1	Federal agency agreements	Obsolete			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Unnecessary due to ESA section 7 planning and coordination.
Winged Mapleleaf (Quadrula fragosa)	2	1E2	State agency agreements	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	

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Winged Mapleleaf (Quadrula fragosa)	3	1E3	Review county zoning	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	1E4	Propose critical habitat	Obsolete			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1E5	Natural heritage databases	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	1	1F1	Assess human disturbance	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	1F2	Educational signs	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	1F3	Public education	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	1	1F4	Tour boat operations	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Management: General	Labor type not yet selected	

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Winged Mapleleaf (Quadrula fragosa)	2	1G1	Review water quality classification	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1G2	Monitor ammonia	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	See Task 1G7
Winged Mapleleaf (Quadrula fragosa)	2	1G3	Point discharge impacts	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Cost dependent on sources
Winged Mapleleaf (Quadrula fragosa)	2	1G4	Point discharge permits	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Cost dependent on sources
Winged Mapleleaf (Quadrula fragosa)	2	1G5	Assess toxins	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1G6	Metal contamination history	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1G7	Water quality monitoring	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Through MPCA or USGS

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Winged Mapleleaf (Quadrula fragosa)	3	1G8	Contaminants literature review	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Research: General	Internal Technical Assistance	Work completed by Columbia USGS lab, with additional research.
Winged Mapleleaf (Quadrula fragosa)	2	1H1	Assess non-point pollution	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1H2	Review forestry plans	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1H3	Mining inventory and assessment	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1H4	Assess agriculture	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1H5	Assess residential and commercial development	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	1H6	Watershed remediation	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	

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Winged Mapleleaf (Quadrula fragosa)	3	111	Assess non-human predator populations	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	112	Assess predation	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	113	Predator control	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	3	114	Assess parasites and disease	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	3	11J	Evaluate cryopreservation	Obsolete			U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Unnecessary since other, large populations found elsewhere.
Winged Mapleleaf (Quadrula fragosa)	3	2A1	Molecular systematics	Ongoing Current	FY 2005		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: Demographic Studies	Internal Technical Assistance	Work being conducted at Iowa State University.
Winged Mapleleaf (Quadrula fragosa)	3	2A2	Conchology studies	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Existing material
Winged Mapleleaf (Quadrula fragosa)	3	2A3	Describe soft body morphology	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Existing material

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Winged Mapleleaf (Quadrula fragosa)	1	2A4	Describe glochidia	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: General	Internal Technical Assistance	USGSLab,LaCross e,WI
Winged Mapleleaf (Quadrula fragosa)	1	2B1	Compare St. Croix habitats	Obsolete			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	2B2	Historical distribution	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	After Task 2E2
Winged Mapleleaf (Quadrula fragosa)	1	2B3	Microhabitat needs	Obsolete			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Winged mapleleaf have been found in many varying habitats- looking at microhabitat of one population is unnecessary.
Winged Mapleleaf (Quadrula fragosa)	2	2B4	Assess ice and flood scour	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	After Task 2E1
Winged Mapleleaf (Quadrula fragosa)	2	2B5	Assess sediment deposition	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	After Task 2E1
Winged Mapleleaf (Quadrula fragosa)	1	2B6	Assess low flow and dewatering impacts	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	2C1	Reproductive phenology	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: General	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	2C2	Glochidial host identification	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	1	2C3	Glochidial host distribution	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: Management Techniques	Internal Technical Assistance	After Task 2C2

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Winged Mapleleaf (Quadrula fragosa)	1	2C4	Reproductive success factors	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	2D1	Conduct PVA and MVP	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Management: General	Internal Technical Assistance	Completed 1998.
Winged Mapleleaf (Quadrula fragosa)	2	2D2	Demographic patterns	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	3	2D3	Historic distribution	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	2	2D4	Determine necessary number of populations	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	1	2E1	Population survey	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service	Research: Population Surveys	Internal Field Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	2E2	Historic distribution	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Internal Field Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	3A1	Assess translocation/reintroduction in St. Croix River	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Internal Field Assistance, Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	3A2	Develop population enhancement plan for St. Croix population	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Internal Technical Assistance	

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Winged Mapleleaf (Quadrula fragosa)	2	4A1	Develop translocation protocol	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources	Management: Reintroduction	Internal Technical Assistance	Also includes states of Arkansas, Missouri, and Tennessee
Winged Mapleleaf (Quadrula fragosa)	2	4A2	Identify suitable habitat	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Management: Reintroduction	Internal Technical Assistance	With assistance from Corps
Winged Mapleleaf (Quadrula fragosa)	2	4B1	Evaluate in situ vs. ex situ measures	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Management: Reintroduction	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	2	4B2	Mussel cultivation	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Management: Propagation	Internal Technical Assistance	Work in progress elsewhere, as well.
Winged Mapleleaf (Quadrula fragosa)	3	5A1	Monitor recruitment	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	3	5A2	Monitor population size	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources	Research: Population Surveys	Internal Field Assistance	

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Winged Mapleleaf (Quadrula fragosa)	3	5A3	Monitor age structure	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, National Park Service, U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources	Management: General	Internal Technical Assistance	
Winged Mapleleaf (Quadrula fragosa)	3	5A4	Monitor genetic structure	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Research	Contract	
Winged Mapleleaf (Quadrula fragosa)	3	5B1	Monitor longevity	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	3	5B2	Population surveys	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Winged Mapleleaf (Quadrula fragosa)	3	5C1	Watershed Management Plan	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	